

AMENDMENTS TO THE DRAWINGS

Attached hereto is one (1) sheet of corrected formal drawings that comply with the provisions of 37 C.F.R. § 1.84. The corrected formal drawings incorporate the following drawing changes:

The recitation of "10a" and "10c" in Figure 2 is amended to "S₁" and "S₃", respectively. A line from "S₃" to "P₃" is added indicating the binding of target to probe P₃. The nucleotide array is labeled "4."

It is respectfully requested that the corrected formal drawings be approved and made a part of the record of the above-identified application.

REMARKS

The Office Action dated August 11, 2004 presents the examination of claims 1-34. Claims 12, 17, 19, 21, and 27 are canceled.

Claims 1-4, 6-11, 16, 20, 24-25, and 31-34 are amended. The amendments to the claims are made for clarification purposes and/or to correct typographical errors. For example, the recitation of "characterized in that" is amended to "wherein", and improper multiple dependent claims are amended into proper form. Therefore, the amendments are not narrowing in scope, and Applicants are in no way conceding any equivalent feature with respect to the pending claims. No new matter is inserted into the application.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all objections and rejections and allow the currently pending claims.

Information Disclosure Statement

The Examiner states that Innis et al. (as cited in the IDS filed on February 8, 2002) was not considered because no copy of the reference was found in the USPTO file. Applicants respectfully clarify that Innis et al. is the editor of the book PCT Applications: Protocols for Functional Genomics (Academic Press 1999). Schmitt et al., is the author of "High density cDNA grids

for hybridization fingerprinting experiments" in PCT Applications.

Therefore, the correct citation form should have been as follows:

Schmitt et al., *High density cDNA grids for hybridization fingerprinting experiments, in PCT Applications: Protocols for Functional Genomics*, Innis et al. eds., 457-472 (Academic Press 1999).

This article was disclosed in the IDS filed on May 28, 2002, as "Schmitt et al., *High density cDNA grids for hybridization fingerprinting experiments*, pp.457-472 (1999)," and was considered by the Examiner. Therefore, Applicants believe that a second submission of the article is not necessary. However, Applicants submit herewith a new form PTO-1449 containing the correct citation of Schmitt et al. so that the full citation is properly printed on any patent issuing from the present application.

Claim Objections

The Examiner objects to claims 12 and 20 for various informalities. Claim 12 is canceled, thus rendering the objection thereof moot. With respect to claim 20, Applicants correct the recitation of "us" in the definition of "e" to "is." Thus, the instant objection is overcome. Claims 20, 25, and 31 are also amended to correct minor typographical errors.

Drawings

The Examiner objects to the drawings for failing to comply with 37 C.F.R. § 1.84(p)(5). Applicants respectfully traverse. Reconsideration and withdrawal of the instant objection are respectfully requested.

First, the Examiner states that Figure 2 is missing numeral 4, which is recited in the specification on page 33, line 1. Second, the Examiner states that the specification does not refer to "10a" or "10c" which are shown in Figure 2.

In response to the Examiner's remarks, Applicants submit herewith a corrected replacement sheet of Figure 2 in compliance with 37 C.F.R. § 1.121(d). An annotated sheet of Figure 2 is also attached which shows changes made to the figure. Specifically, the recitation of "10a" and "10c" in Figure 2 is amended to "S₁" and "S₃", respectively. A line labeled "S₃" is also added to Figure 2 indicating the binding of this target to the probe P₃. In addition, the nucleotide array is labeled "4."

Applicants respectfully submit that these amendments bring Figure 2 into conformity with the text located on page 33, lines 1-5 of the specification. Withdrawal of the instant objection is therefore respectfully requested.

Claim Objections

The Examiner objects to claims 24, 32, and 34 under 37 C.F.R. § 1.75(c) for allegedly being in improper form. In response to the Examiner's remarks, claims 24, 32, and 34 are amended to refer to only one antecedent claim. Support for subject matter added to claim 24 is found in claim 1, and support for subject matter added to claims 32 and 34 is found in claim 2.

Rejection under 35 U.S.C. § 112, second paragraph

The Examiner rejects claims 8-12, 17, and 19-23 under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite. Claims 12, 17, 19, 21, and 27 are canceled, thus rendering the rejection of these claims moot. Applicants respectfully traverse the rejection of the pending claims. Reconsideration and withdrawal of the instant rejection are respectfully requested.

The Examiner asserts that the recitation of "less than about" in claims 8-11 is unclear. In order to overcome the rejection, the term "about" is deleted.

The Examiner asserts that the recitation of "essentially equal" in claim 11 is vague. In order to overcome the rejection, the term "essentially" is deleted.

Applicants respectfully submit that the pending claims particularly point out and distinctly claim the subject matter

which is Applicants' invention. Withdrawal of the instant rejection is therefore respectfully requested.

Rejection under 35 U.S.C. § 102

The Examiner rejects claims 1-23, 25-31, and 33 under 35 U.S.C. § 102(b) and (e) for allegedly being anticipated by either Chen et al. (*J. Biomedical Optics*, 2(4):364 (1997)) or Lockhart '316 (U.S. Patent 6,344,316). Claims 12, 17, 19, 21, and 27 are canceled, thus rendering the rejection of these claims moot. Applicants respectfully traverse the rejection of the pending claims. Reconsideration and withdrawal of the instant rejection are respectfully requested.

The present invention provides a probe array in which at least one probe can hybridize with at least two targets in a sample of nucleotide targets. This feature of the present invention is recited in claim 1, which states, "wherein the probing nucleotide sequences of at least one probing unit can hybridize to target nucleotide sequences in at least two different target oligonucleotides."

None of the references cited by the Examiner disclose or even remotely suggest a probe array having the property wherein at least one probe can hybridize with at least two targets in a sample of nucleotide targets. The Examiner also does not point out where

this claim limitation is disclosed in the cited references. Instead, the Examiner merely states, "Chen et al. teaches and describes what is claimed. For example, see the Abstract, Sections 3-5, Figure 1, and Section 8. Likewise, Lockhart et al. teaches and describes the claimed invention. For example, see the Abstract and especially Example 1 (columns 67-73)." See, page 5, first full paragraph, of the Office Action. In this regard, the Examiner has failed to establish a *prima facie* case of anticipation.

Figure 1 of Chen et al. shows the set-up of a standard hybridization assay. The Examiner refers to Figure 1 in making the rejection. However, there is nothing in this figure remotely hinting at the claimed features of the present invention. The Examiner also refers to Example 1 of Lockhart '316, which describes a probe array. However, the probe array of Lockhart '316 is completely different from the array of the present invention. Specifically, in the probe array of Lockhart '316 (as defined in Table 2), each probe may only hybridize to a single target. This is in contrast to the present invention, wherein at least one of the probes is designed to hybridize with two or more targets. There is no disclosure or suggestion in Lockhart '316 of a probe array in which at least one of the probes is designed to hybridize with two or more targets, as claimed in the present application.

Further, the probe array of the present invention provides for a hybridization assay in which a system of linear equations is generated. Neither Chen et al. nor Lockhart '316 mention a system of equations (linear or otherwise), or equivalently, a matrix equation. Accordingly, neither of these references is, in fact, relevant to the present application.

For these reasons, both Chen et al. and Lockhart '316 fail to anticipate the present invention. Withdrawal of the instant rejection is therefore respectfully requested.

Conclusion

Applicants respectfully submit that the above remarks and/or amendments fully address and overcome the outstanding rejections and objections. For the foregoing reasons, Applicants respectfully request the Examiner to withdraw all of the outstanding rejections and objections, and to issue a Notice of Allowance indicating the patentability of the present claims. Early and favorable action of the merits of the present application is thereby respectfully requested.

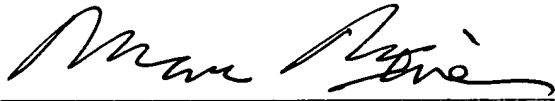
Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants hereby petition for an extension of two (2) months to January 11, 2005, in which to file a reply to the Office Action. The required fee of \$215.00 is enclosed herewith.

Appl. No. 10/049,161

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

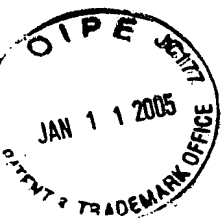
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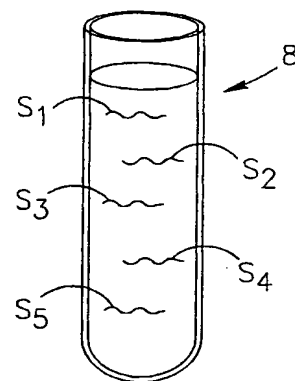
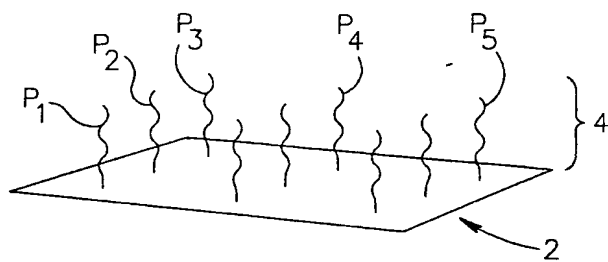


FIG.1

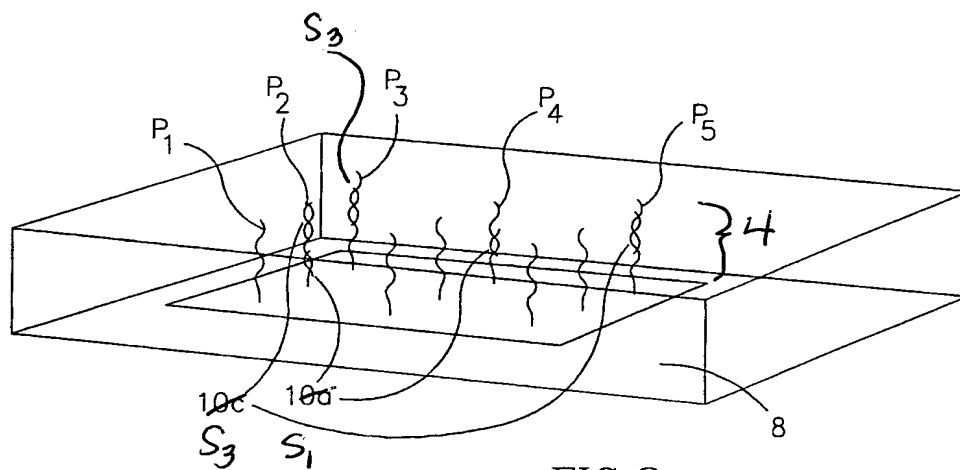


FIG.2

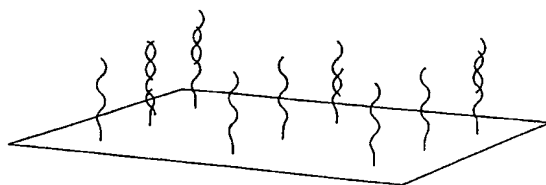


FIG.3